Sub C2 and a

2. (Amended) The optical filter of claim 1, wherein one of the first and second optical elements is tunable to change the corresponding first or second reflection wavelength.

3. (Amended) The optical filter of claim 1, wherein both of the first and second optical elements is tunable to change each of the respective first and second reflection wavelengths.

sub B2

9. (Amended) The optical filter of claim 1, wherein one of the first and second filter functions comprises one of a Gaussian, rectangular and ramped profile.

Sub D

12. (Amended) The optical filter of claim 1, wherein at least one of the first and second optical elements have an outer cladding and an inner core disposed therein, wherein the at least one of the first and second reflective element comprises a grating disposed in a longitudinal direction of the inner core.

Sub C3

14. (Amended) The optical filter of claim 12, wherein the at least one of the first and second optical elements is an optical waveguide having an outer transverse dimension of at least 0.3 mm.

and B3

16. (Amended) The optical filter of claim 2 further includes a compression device that axially compresses at least one of the first and second tunable optical elements, wherein at least one of the respective first and second reflective elements is disposed along an axial direction of the respective first and second tunable element.

22. (Amended) A tunable optical filter comprising:

a tunable optical waveguide for receiving light, the optical waveguide comprising:

a first reflective element for receiving light and reflecting a first wavelength band of the light centered at a first reflection wavelength, the first reflective element characterized by a first filter function; and

a second reflective element, optically connected to the first reflective element to receive the reflected first wavelength band of the light, for reflecting a second wavelength band of the light centered at a second reflection wavelength, the second reflective element characterized by a second filter function;

whereby the first wavelength band and the second wavelength band overlap spectrally.

23. (Amended) The optical filter in claim 22, wherein the tunable optical waveguide includes a cladding having a first and second inner core therein for propagating light, wherein the first reflective element includes a grating disposed along an axial direction in the first inner core, and the second reflective element includes a grating disposed along an axial direction in the second inner core.

24. (Amended) The optical filter of claim 23, wherein tunable optical waveguide has an outer transverse dimension of at least 0.3 mm.

25. (Amended) The optical filter of claim 23, further comprising:

an optical directing device optically connected to the first and second inner cores; the optical directing device directing the light to the first reflective element, directing the first wavelength band reflected from the first reflective element to the second reflective element, and directing the second wavelength band reflected from the second reflective element to the output port of the optical directing device.

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27. (Amended) The optical filter in claim 23 further includes at least a compressing device for axially compressing the tunable optical waveguide to tune the first and second reflective elements.

31. (Amended) The optical filter of claim 22 further includes:

a compressing device for axially compressing the tunable optical waveguide to tune the first and second reflective elements, responsive to a displacement signal, wherein the first and second reflective elements are disposed axially along the tunable optical waveguide; and

a displacement sensor, responsive to the compression of the tunable optical waveguide, for providing the displacement signal indicative of the change in the displacement of the tunable optical waveguide.

32. (Amended) A method for selectively filtering an optical wavelength band from an input light; the method comprising:

Sub B9

providing a first optical element including a first reflective element for receiving the input light and reflecting a first wavelength band of the light centered at a first reflection wavelength, the first reflective element characterized by a first filter function;

providing a second optical element, optically connected to the first optical element to receive the reflected first wavelength band of the light, including a second reflective element for reflecting a second wavelength band of light centered at a second reflection wavelength, whereby the amplitude profile of the first filter function is different than the amplitude profile of the second filter function, and the first wavelength band and the second wavelength band overlap spectrally; and

tuning one of the first and second reflective elements to overlap spectrally the first reflection wavelength band and the second reflection wavelength band.

Sub C22

34. (Amended) The method of claim 32, wherein the tuning one of the first and second reflective elements comprises:

substantially aligning the first reflection wavelength and the second reflection wavelength.

36. (Amended) The method of claim 32, wherein the tuning one of the first and second reflective elements comprises:

offsetting a first reflection wavelength and a second reflection wavelength by a predetermined spacing.

37. (Amended) A compression-tuned optical filter comprising:

a first optical element including a first reflective element for receiving light and reflecting a first wavelength band of the light centered at a first reflection wavelength, the first reflective element characterized by a first filter function; and

a second optical element, optically connected to the first optical element to receive the reflected first wavelength band of the light, including a second reflective element for reflecting a second wavelength band of the light centered at a second reflection wavelength, wherein the amplitude profile of the first filter function is different than the amplitude profile of the second filter function, and the first wavelength band and the second wavelength band overlap spectrally,

wherein at least one of the first and second optical element has outer dimensions along perpendicular axial and transverse directions, the outer dimension being at least 0.3 mm along said transverse direction, at least a portion of the respective first or second tunable element having a transverse cross-section which is contiguous and comprises a substantially homogeneous material; and the respective first or second reflective element being axially strain compressed so as to change respective first or second reflection wavelength without buckling the respective first or second tunable element in the transverse direction.

Please add claims 38 - 68 as follows:

38. The optical filter of claim 14, wherein said outer transverse dimension is greater than the dimension selected from the group consisting of 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.8 mm, 1.0 mm, 1.2 mm, 1.4 mm, 1.6 mm, 1.8 mm, 2.0 mm, 2.1 mm, 2.3 mm, 2.5 mm, 2.7 mm, 2.9 mm, 3.0 mm, 3.3 mm, 3.6 mm, 3.9 mm, 4.0 mm, 4.2 mm, 4.5 mm, 4.7 mm and 5.0 mm.

39. The optical filter of claim 29, wherein one of the first and second filter functions comprises one of a Gaussian, rectangular and ramped profile.

and B11

Sub C2

40. The optical filter of claim 29, wherein one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized.

41. The optical filter of claim 24, wherein said outer transverse dimension is greater than the dimension selected from the group consisting of 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.8 mm, 1.0 mm, 1.2 mm, 1.4 mm, 1.6 mm, 1.8 mm, 2.0 mm, 2.1 mm, 2.3 mm, 2.5 mm, 2.7 mm, 2.9 mm, 3.0 mm, 3.3 mm, 3.6 mm, 3.9 mm, 4.0 mm, 4.2 mm, 4.5 mm, 4.7 mm and 5.0 mm.

and B12

42. The optical filter of claim 29, wherein the amplitude profile of the first filter function is different than the amplitude profile of the second filter function

43. The method of claim 32, further comprising tuning the other one of the first and second reflective elements to overlap spectrally the first reflection wavelength band and the second reflection wavelength band.

44. The method of claim 32, wherein one of the first and second filter functions comprises one of a Gaussian, rectangular and ramped profile.

45. The method of claim 32, wherein at least one of the first and second optical elements have an outer cladding and an inner core disposed therein, wherein the at least one of the first and second reflective element comprises a grating disposed in a longitudinal direction of the inner core.

Sub C2

46. The method of claim 45, wherein the at least one of the first and second optical elements is an optical waveguide having an outer transverse dimension of at least 0.3 mm.

Sub C29

47. The method of claim 45, wherein the at least one of the first and second optical elements is an optical fiber.

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48. The method of claim 46, wherein said outer transverse dimension is greater than the dimension selected from the group consisting of 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.8 mm, 1.0 mm, 1.2 mm, 1.4 mm, 1.6 mm, 1.8 mm, 2.0 mm, 2.1 mm, 2.3 mm, 2.5 mm, 2.7 mm, 2.9 mm, 3.0 mm, 3.3 mm, 3.6 mm, 3.9 mm, 4.0 mm, 4.2 mm, 4.5 mm, 4.7 mm and 5.0 mm.

and B13

49. The optical filter of claim 37, wherein both of the first and second optical elements is tunable to change each of the respective first and second reflection wavelengths.

Sub C31

50. The optical filter of claim 37, wherein the first reflection wavelength and the second reflection wavelength are substantially aligned to reflect a portion of the aligned wavelength bands to an output port.

and B14

51. The optical filter of claim 37, wherein one of the first and second filter functions comprises one of a Gaussian, rectangular and ramped profile.

Sub C33

52. The optical filter of claim 37, wherein one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized.

53. The optical filter of claim 37, wherein the first reflection wavelength is offset a predetermined spacing from the second reflection wavelength.

and B15

54. The optical filter of claim 37, wherein at least one of the first and second optical elements have an outer cladding and an inner core disposed therein, wherein the at least one of the first and second reflective element comprises a grating disposed in a longitudinal direction of the inner core.

55. The optical filter of claim 54, wherein the at least one of the first and second optical elements is an optical waveguide having an outer transverse dimension of at least 0.3 mm.

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56. The optical filter of claim 37 further includes a compression device that axially compresses at least one of the first and second tunable optical elements, wherein at least one of the respective first and second reflective elements is disposed along an axial direction of the respective first and second tunable element.

57. The optical waveguide of claim 55, wherein said outer dimension of said waveguide in the transverse direction is greater than the dimension selected from the group consisting of 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.8 mm, 1.0 mm, 1.2 mm, 1.4 mm, 1.6 mm, 1.8 mm, 2.0 mm, 2.1 mm, 2.3 mm, 2.5 mm, 2.7 mm, 2.9 mm, 3.0 mm, 3.3 mm, 3.6 mm, 3.9 mm, 4.0 mm, 4.2 mm, 4.5 mm, 4.7 mm and 5.0 mm.

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58. An optical filter comprising:

a first optical waveguide including a first reflective element for receiving light and reflecting a first wavelength band of the light centered at a first reflection wavelength, the first reflective element characterized by a first filter function; and

a second optical waveguide, optically connected to the first optical element to receive the reflected first wavelength band of the light, including a second reflective element for reflecting a second wavelength band of the light centered at a second reflection wavelength, the second reflective element characterized by a second filter function;

whereby the first reflection wavelength and the second reflection wavelength are substantially aligned to reflect a portion of the aligned wavelength bands.

Sub C31

59. The optical filter of claim 58, wherein one of the first and second optical waveguides is tunable to change the corresponding first or second reflection wavelength.

60. The optical filter of claim 58, wherein both of the first and second optical waveguides is tunable to change each of the respective first and second reflection wavelengths.

61. The optical filter of claim 58, further comprising:

an optical directing device optically coupled to the first and second optical waveguides; the optical directing device directing the light to the first reflective element, directing the first wavelength band reflected from the first reflective element to the second reflective element, and directing the second wavelength band reflected from the second reflective element to the output port of the optical directing device.

62. The optical filter of claim 58, wherein one of the first and second filter functions comprises one of a Gaussian, rectangular and ramped profile.

63. The optical filter of claim 58, wherein one of the first and second reflective elements is fully apodized and the other of the first and second reflective elements is partially apodized.

64. The optical filter of claim 58, wherein at least one of the first and second optical waveguides have an outer cladding and an inner core disposed therein, wherein the at least one of the first and second reflective element comprises a grating disposed in a longitudinal direction of the inner core.

65. The optical filter of claim 64, wherein the at least one of the first and second optical waveguides has an outer transverse dimension of at least 0.3 mm.

66. The optical filter of claim 64, wherein the at least one of the first and second optical waveguides is an optical fiber.

67. The optical filter of claim 59 further includes a compression device that axially compresses at least one of the first and second tunable optical waveguides, wherein at least one of the respective first and second reflective elements is disposed along an axial direction of the respective first and second tunable element.